

HEREBY CERTIFY THAT THIS CORRESPONDENCE
IS BEING DEPOSITED WITH THE UNITED STATES
POSTAL SERVICE AS FIRST CLASS MAIL IN AN
ENVELOPE ADDRESSED TO: COMMISSIONER OF
PATENTS AND TRADEMARKS, WASHINGTON, D.C.
20231, ON THE DATE INDICATED BELOW.

BY Laura Taylor
DATE 2-22-89

Patent

BOX AF

RESPONSE UNDER 37 CFR 1.116
EXPEDITED PROCEDURE EXAMINER
GROUP 246

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re: Patent Application of : Group Art Unit 246
Omer Cure et al. :
Serial No: 780,707 : Examiners:
Filed: September 26, 1985 : Scanlon/Cuchlinski
For: IMMERSION MEASURING :
PROBE FOR USE IN : Attorney Docket
MOLTEN METALS : No. 925-145 (FWC) U1

AMENDMENT AFTER FINAL REJECTION

In response to the Office Action mailed November 14,
1988 (no Paper No. given), please amend the above-identified
application as follows:

In the Claims:

Please amend claims 16, 18, 20, 28, 33 and 34 as
follows:

16. (Twice Amended) An immersion probe comprising: an
electrically conductive tube, one end of said tube being an

immersion end; a measuring element, mounted on a head closing said immersion end of said tube; electrical conductors within said tube extending from said measuring element through said tube; an electrical connector closing the opposite end of said tube from said immersion end; and means surrounding said tube for protecting said tube, said protection means comprising a generally annular heat insulative refractory sheath having an immersion end and another end, the sheath being open at each end and encasing a major portion of said tube, said sheath being tapered towards said immersion end of said tube exposing said measuring element[,] so that the thickness of the sheath diminishes from a maximum thickness at said other end to a minimum thickness [of said sheath being] at said immersion end for minimizing the cross-sectional area of the probe at the immersion end to minimize trapped gases adjacent to said measuring element when immersed into a molten metal bath.

18. (Twice Amended) An immersion probe for measurements in a molten metal bath comprising: a tube whose end is to be dipped first into the bath, said tube being closed at said end by a plug shaped measuring head, said head carrying a measuring element; and a generally annular heat insulative refractory sheath encasing said tube, having a sheath wall with an inner diameter generally corresponding to the outer diameter of said tube along substantially the entire length of the sheath and an outer diameter which diminishes from a maximum at an end distal

y2

from the first dipped end of the tube to a minimum at an end proximate the first dipped end of the tube [being tapered towards and] with its minimum wall thickness adjacent to said first dipped end of said tube for minimizing the cross-sectional area of the probe at said first dipped end of said tube to minimize trapped gases adjacent to the measuring element when dipped into the bath.

y3

20. (Twice Amended) An immersion probe for measurement in a molten metal bath comprising: a tube having an immersion end; a measuring head closing said immersion end of said tube, said head carrying at least one measuring element and corresponding electrical leads, said electrical leads being positioned internal of said tube, said tube being surrounded over a major portion of the length by a generally annular protective sheathing of fireproof, refractory heat-resistant material, the outer surface of said sheathing being tapered towards the immersion end of said tube[,] so that the thickness of the sheathing diminishes from a maximum at an end distal to said immersion end of said tube to [said sheathing having] a minimum thickness directly adjacent to said immersion end of said tube for minimizing the cross-sectional area of the probe at the immersion end of said tube to minimize trapped gases adjacent to the measuring element when immersed into the metal bath and for exposing only a portion of said tube to the bath.

Claim 28, line 24, delete "resin coated molding sand"
and substitute --heat insulating particulate material--.